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PEAT MARWICK MITCHELL AND CO SAN FRANCISCO CALIF  
NEW YORK TASK FORCE DELAY STUDIES, OPTIMIZED RUNWAY USE EXPERIM--ETC(U)  
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LEVEL II

NEW YORK TASK FORCE DELAY STUDIES,  
OPTIMIZED RUNWAY USE EXPERIMENTS.

LaGuardia Airport,  
John F. Kennedy International Airport,

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Prepared by

Peat, Marwick, Mitchell & Co.  
San Francisco, California

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HOURLY RUNWAY CAPACITIES  
New York Task Force Delay Studies  
LaGuardia Airport

a. 50% arrivals.

[illegible]

Table 2

HOURLY RUNWAY CAPACITIES  
New York Task Force Delay Studies  
John F. Kennedy International Airport

Runway use	Runway configurations <sup>a</sup>		Hourly capacity (operations/hour) <sup>b</sup>		
	Arrivals	Departures	VFR	IFR1	IFR2
1	31L,31R	31L	73	52	53
2	22L,22R,13R	22R	82	52	53
3	13L,13R,22L	13R	80	52	53
4	4R,4L	4L	72	52	53
5	31L	31L	42		
6	22R	22R	47	47	43
7	4L	4L	44	44	41
8	13R	13R	46	46	42
9	31R	31R	45		
10	22L,22R	22R	78	52	53
11	13L,13R	13R	79	52	53

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a. Runway configurations 1 through 9 constitute "historic configurations"; configurations 1 through 4 and 10 through 11 constitute "optimized configurations."

b. 50% arrivals.

Source: Peat, Marwick, Mitchell & Co.

Table 3

OPTIMIZED VERSUS HISTORIC RUNWAY USE  
New York Task Force Delay Studies  
LaGuardia Airport

Runway use	Runway configurations		Historic runway use (percent)			Optimized runway use (percent)		
	Arrivals	Departures	VFR	IFR1	IFR2	VFR	IFR1	IFR2
1	22	13	23.0	1.9	0.8	20.9	2.1	1.0
2	22	31	23.6	0.4	0.2	26.2	0.6	0.3
3	31	31	17.8	0.1	0.0	10.9	0.1	0.0
4	31	4	14.7	0.0	0.0	18.4	1.0	0.5
5	4	13	3.7	1.9	1.8	10.9	1.3	1.5
6	13	4	4.3	0.0	0.0			
7	4	4	1.6	1.3	0.6	2.1	0.9	0.5
8	13	13	1.2	0.7	0.4	0.5	0.2	0.1
(Average hourly capacity <sup>a</sup> )			(71.5)			(73.9)		

a. Operations per hour at 50% arrivals.

Source: Peat, Marwick, Mitchell & Co.

Table 4

OPTIMIZED VERSUS HISTORIC RUNWAY USE  
New York Task Force Delay Studies  
John F. Kennedy International Airport

Runway use	Runway configurations		Historic runway use, historic configurations (percent)			Historic runway use, optimized configurations (percent)			Optimized runway use, optimized configurations (percent)		
	Arrivals	Departures	VFR	IFR1	IFR2	VFR	IFR1	IFR2	VFR	IFR1	IFR2
1	31L, 31R	31L	37.4	0.1	0.3	40.7	0.1	0.3	28.8	0.5	0.6
2	22L, 22R, 31R	22R	18.4	0.6	2.1	18.4	0.6	2.1	35.4	0.5	0.5
3	13L, 13R, 22L	13R	16.5	0.6	1.1	16.5	0.6	1.1	9.5	1.6	1.9
4	4L, 4R	4L	8.1	3.4	2.3	9.3	3.8	2.4	5.0	1.4	1.6
5	31L	31L	2.5	0.0	0.0						
6	22R	22R	2.8	0.1	0.1						
7	4L	4L	1.2	0.4	0.1						
8	13R	13R	1.1	0.0	0.0						
9	31R	31R	0.8	0.0	0.0						
10	22L, 22R	22R				2.8	0.1	0.1	6.9	0.5	0.6
11	13L, 13R	13R				1.1	0.0	0.0	3.2	0.7	0.8
(Average hourly capacity <sup>a</sup> )			(71.0)			(73.6)			(75.1)		

a. Operations per hour at 50% arrivals.

Source: Peat, Marwick, Mitchell & Co.

Table 5

SUMMARY OF ANNUAL DELAY MODEL RESULTS  
New York Task Force Delay Studies  
LaGuardia Airport

<u>Runway configuration</u>	<u>Runway use</u>	<u>Demand</u>	<u>Airfield improvements</u>	<u>Average annual delay (minutes)</u>	<u>Total annual delay (hours)</u>	<u>Annual delay <sup>a</sup> cost (dollars)</u>
Historic	Historic	1978	1978	18.1	106,500	\$ 99.0 million
Historic	Historic	1982	1978	19.4	117,100	\$130.0 million
Historic	Historic	1982	1982	18.6	111,800	\$124.1 million
Historic	Optimized	1978	1978	13.5	79,600	\$ 74.0 million
Historic	Optimized	1982	1978	14.6	87,800	\$ 97.5 million
Historic	Optimized	1982	1982	14.1	84,700	\$ 94.0 million

a. Assumes \$15.50 per minute for the 1978 mix and \$18.50 per minute for the 1982 mix.

Source: Peat, Marwick, Mitchell & Co.

Table 6

SUMMARY OF ANNUAL DELAY MODEL RESULTS  
New York Task Force Delay Studies  
John F. Kennedy International Airport

<u>Runway configuration</u>	<u>Runway use</u>	<u>Demand</u>	<u>Airfield improvements</u>	<u>Average annual delay (minutes)</u>	<u>Total annual delay (hours)</u>	<u>Annual delay cost (dollars)<sup>a</sup></u>
Historic	Historic	1978	1978	15.2	87,500	\$181.1 million
Historic	Historic	1982	1978	31.4	215,300	\$435.3 million
Historic	Historic	1982	1982	22.9	156,200	\$315.8 million
Optimized	Historic	1978	1978	8.1	46,900	\$ 97.1 million
Optimized	Historic	1982	1978	21.4	146,000	\$295.2 million
Optimized	Historic	1982	1982	10.3	70,000	\$141.5 million
Optimized	Optimized	1978	1978	7.5	43,400	\$ 89.8 million
Optimized	Optimized	1982	1978	18.8	128,500	\$259.8 million
Optimized	Optimized	1982	1982	9.9	67,000	\$135.5 million

a. Assumes \$34.50 per minute for the 1978 mix and \$33.70 per minute for the 1982 mix.

Source: Peat, Marwick, Mitchell & Co.



Table 7

SUMMARY OF APPROXIMATE DELAY COST SAVINGS  
New York Task Force Delay Studies

LaGuardia Airport

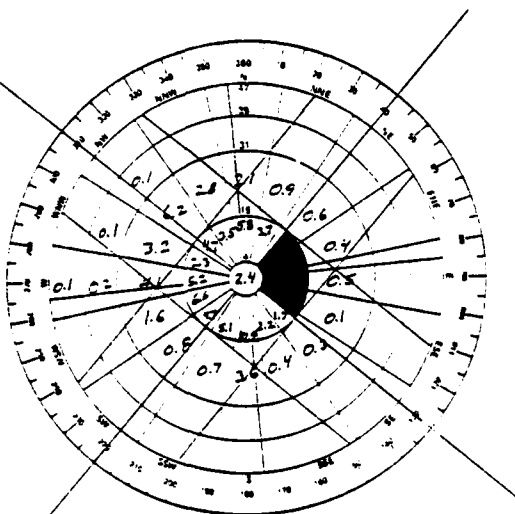
1978 Delay cost savings due to optimized runway use	--	\$25.0 million
1982 Delay cost savings due to airfield improvements:		
• without optimized runway use	--	\$5.9 million
• with optimized runway use	--	\$3.5 million
1982 Delay cost savings due to optimized runway use:		
• without airfield improvements	--	\$32.5 million
• with airfield improvements	--	\$30.1 million

John F. Kennedy International Airport

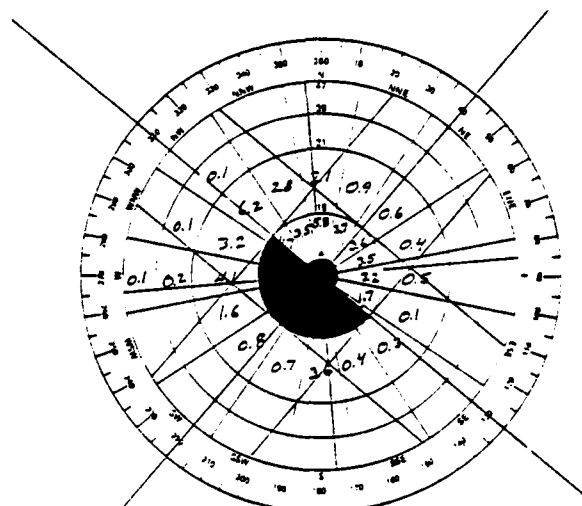
1978 Delay cost savings due to optimized configurations	--	\$84.0 million
1982 Delay cost savings due to airfield improvements:		
• without optimized configurations and runway use	--	\$119.5 million
• with optimized configurations alone	--	\$153.7 million
• with both optimized configurations and runway use	--	\$124.3 million
1982 Delay cost savings due to optimized configurations:		
• without airfield improvements	--	\$140.1 million
• with airfield improvements	--	\$174.3 million
1978 Delay cost savings due to optimized runway use with optimized configurations	--	\$7.3 million
1982 Delay cost savings due to optimized runway use with optimized configurations:		
• without airfield improvements	--	\$35.4 million
• with airfield improvements	--	\$6.0 million

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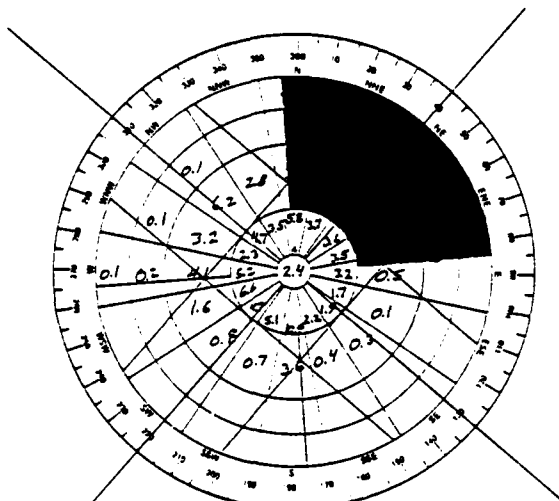
Source: Peat, Marwick, Mitchell & Co.



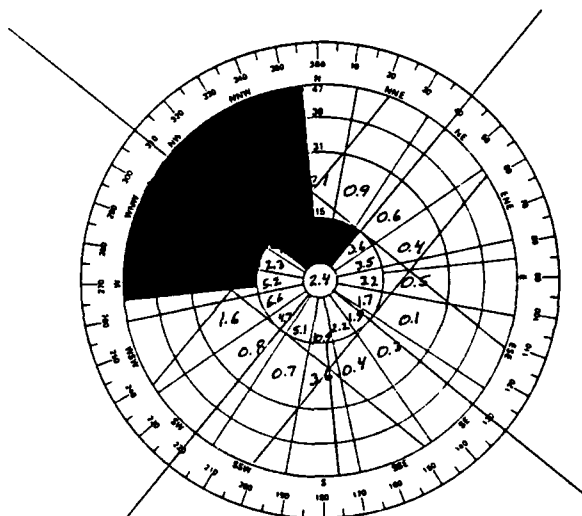
Arrivals - 13L, 13R, 22L  
Departures - 13R



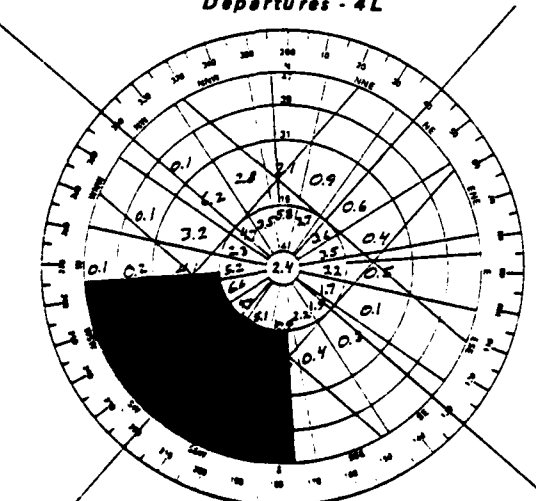
Arrivals - 22L, 22R, 13R  
Departures - 22R



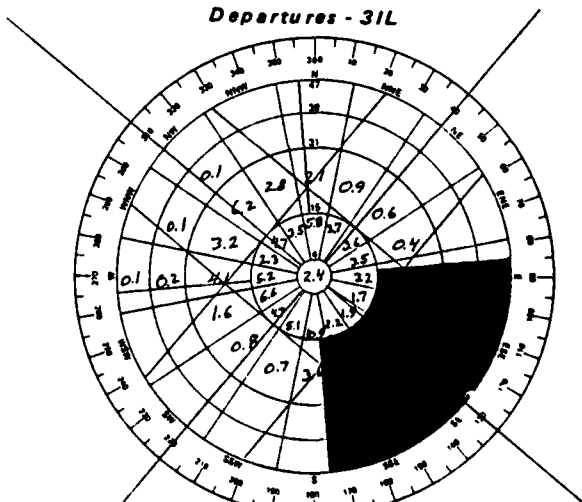
Arrivals - 4L, 4R  
Departures - 4L



Arrivals - 31L, 31R  
Departures - 31L



Arrivals - 22L, 22R  
Departures - 22R



Arrivals - 13L, 13R  
Departures - 13R

EXHIBIT I  
WIND ROSES FOR VFR WITH  
NO PRECIPITATION  
JFK INTERNATIONAL AIRPORT